

Application Serial No.: 10/092,476

Amendment dated June 9, 2005
Reply to Office Action of 12/13/2004**AMENDMENT TO THE CLAIMS**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2 (Canceled).

3 (Currently Amended). The motor according to claim 1 A motor having a rotational member supported rotatably through a bearing device provided on a base member of the motor, said bearing device comprising upper and lower ball bearings each of which includes an inner ring fit around a shaft of the motor, an outer ring, and a plurality of balls interposed therebetween, said bearing device further comprising;

a spacer interposed between the outer rings of the upper and lower ball bearings wherein the spacer is made of material larger in its coefficient of linear expansion than that of the upper and lower outer rings,

characterized in that low expansion rings made of material lower in its coefficient of linear expansion than that of the outer rings are press fit around the outer periphery of each outer ring of the bearing device respectively.

4 (Currently Amended). The motor according to claim 2 A motor having a rotational member supported rotatably through a bearing device provided on a base member thereof, said bearing device comprising;

a stepped shaft including a larger diameter shaft portion around which an inner ring raceway is formed directly thereon and a reduced diameter shaft

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a ball bearing including an inner ring fit slidably around the reduced diameter shaft portion, and a first outer ring,

a second outer ring surrounding the inner ring raceway provided around the larger diameter shaft portion,

a plurality of balls interposed between the inner ring raceway and an outer ring raceway formed on an inner peripheral surface of the second outer ring, and

a spacer interposed between the first outer ring of the ball bearing and the second outer ring provided around the larger diameter shaft portion; wherein the spacer is made of material larger in its coefficient of linear expansion than that of the first and second outer rings,

characterized in that low expansion rings made of material lower in its coefficient of linear expansion than that of the first and second outer rings are press fit around the outer periphery of each outer ring of the bearing device respectively.

5 (Original). The motor according to claim 3, characterized in that the low expansion rings of the bearing device are made of ceramic material.

6 (Original). The motor according to claim 4, characterized in that the low expansion rings of the bearing device are made of ceramic material.

7 (Currently Amended). The motor according to claim [[1]] 3, characterized in that the balls of the bearing device are made of ceramic

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material.

8 (Currently Amended). The motor according to claim [[2]] 4, characterized in that the balls of the bearing device are made of ceramic material.

9 (Canceled).

10 (Currently Amended). The motor according to claim [[9]] 11, wherein said spacer is made of material having a larger coefficient of linear expansion than a coefficient of linear expansion of the outer rings, whereby said spacer axially displaces said outer rings relative to each other with increasing temperature.

11 (Currently Amended). The motor according to claim 10 A motor having a rotational member supported rotatably through a bearing device provided on a base member of the motor, said bearing device comprising upper and lower ball bearings each of which includes an inner ring fit around a shaft of the motor, an outer ring, and a plurality of balls interposed therebetween, said bearing device further comprising:

clearance maintaining means for reducing temperature induced variation of radial clearances between elements of the bearing device;

said clearance maintaining means including a spacer interposed between the outer rings of the upper and lower ball bearings for axially

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displacing said outer rings relative to each ball with increasing temperature,
thereby to reduce a radial clearance between said balls and said inner and
outer rings.

further comprising low expansion rings press fit around the outer periphery of each respective outer ring of the bearing device, said low expansion rings made of material having a lower coefficient of linear expansion than the coefficient of linear expansion of the respective outer rings.

12 (Canceled).

13 (Currently Amended). The motor according to claim [[11]] 14, wherein said spacer is made of material having a larger coefficient of linear expansion than a coefficient of linear expansion of the first and second outer rings, whereby said spacer axially displaces said first and second outer rings relative to each other with increasing temperature.

14 (Currently Amended). ~~The motor according to claim 13 A motor having a rotational member supported rotatably through a bearing device provided on a base member thereof, said bearing device comprising:~~

a stepped shaft including a larger diameter shaft portion around which an inner ring raceway is formed directly thereon and a reduced diameter shaft portion,

a ball bearing including an inner ring fit slidably around the reduced diameter shaft portion, and a first outer ring,

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a second outer ring surrounding the inner ring raceway provided around the larger diameter shaft portion.

a plurality of balls interposed between the inner ring raceway and an outer ring raceway formed on an inner peripheral surface of the second outer ring, and

clearance maintaining means for reducing temperature induced variation of radial clearances between elements of the bearing device;

said clearance maintaining means including a spacer interposed between the first outer ring of the ball bearing and the second outer ring provided around the larger diameter shaft portion for axially displacing said second outer ring with increasing temperature, thereby to reduce a radial clearance between said balls and said outer ring raceway,

further comprising low expansion rings press fit around the outer periphery of each respective outer ring of the bearing device, said low expansion rings made of material having a lower coefficient of linear expansion than the coefficient of linear expansion of the respective outer rings.